UNITED STATES PATENT AND TRADEMARK OFFICE

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10/729,464	12/05/2003	Eric J. Horvitz	M1103.70734US00	1267

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WOLF GREENFIELD (Microsoft Corporation)
C/O WOLF, GREENFIELD & SACKS, P.C.
600 ATLANTIC AVENUE
BOSTON, MA 02210-2206

EXAMINER
BATES, KEVIN T

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _24 August 2008_.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-80 and 82-84_ is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) _1-19, 21-23, 27, 29-37, 43-80 and 82-84_ is/are rejected.
7)☒ Claim(s) _20, 24-26, 28 and 38-42_ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _12-17-09_.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application
6)☐ Other: _____ .

Response to Amendment

This Office Action is in response to a communication received on August 24, 2009.

The Power of Attorney has been received on June 9, 2009.

The Information Disclosure Statement received December 17, 2009 has been considered.

Claims 1, 36, 43, 48, 79, and 80 are currently amended.

Claim 81 has been cancelled.

Claims 1-80 and 82-84 are pending in this application.

New Examiner

Please note that this application has been reassigned to a new examiner.

Claim Objections

Claim 53 is objected to because of the following informalities: There exist 2 claim 53s in this application please correct the duplicate claim number. For the purpose of further prosecution the 2nd listed claim 53 will be treated as claim 54. Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 36, 43-48, 53, 54(2nd 53)-78, 80, and 82 are rejected under 35

U.S.C. 101 because the claimed invention is directed to non-statutory subject

matter.

Claim 36 is directed toward an analysis system comprising a control and

analysis component. A component is defined on page 7, lines 6 – 18 of the applicant's

specification as having software embodiments. As result, the claim is directed towards

a system comprising software components, thus software per se. Software is not one of

the four statutory classes, which makes the claim directed towards unpatentable subject

matter.

Claim 76-78 are rejected under the same rationale as claim 36.

Claim 80 is rejected under the same rationale as claim 36.

Claim 43 is directed to a method for analysis data. This method contains the

steps of "obtaining perception evidence", "analyzing the perception evidence utilizing an

analysis policy", and "employing the perceived system value". None of these steps are

tied to a particular machine or create a transformation of matter. As result the claimed

method fails the machine or transformation test and is non-statutory under §101.

Claims 44-48, 53, 54(2nd 53)-75 are rejected under the same rationale as claim

43.

Claim 82 is directed to a computer readable medium having stored executable

components. The applicant's specification gives support for a computer readable

medium on page 35, lines 21-24 and provides an open-ended definition of the medium.

The Office has interpreted computer readable media, when not explicitly defined, to

include both types of transitory and non-transitory mediums. Computer software stored

on transitory medium is not included under the statutory classes of patentability, and as

result, these claims are directed towards non-patentable subject matter.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5-19, 21-23, 27, 29-35, 37, 43-45, 47-56, 65-69, 78-80, and 82-84

are rejected under 35 U.S.C. 102(b) as being anticipated by Horvitz (6421665).

Regarding claims 1, 82, and 84, Horvitz teaches an analysis system,

comprising:

a plurality of sensors configured to collect perception evidence (Fig 6; Col. 15,

lines 51 - 62);

a computer system comprising a perception system that, when executed,

consumes computing resources of the computing system (Col. 4, lines 16 – 28), the

perception system comprising:

a control component that selectively gathers from the plurality of sensors the

perception evidence, the perception evidence being gathered at times selected to limit

utilization of the computing resources of the computer system by the perception system

(Col. 15, lines 23 – 27); and

an analysis component that utilizes an analysis policy to analyze the perception

evidence to determine a context of a user of the computer system wherein:

the control component uses information from the analysis component

regarding at least one feature about which to collect data to select the times at

which to gather perception evidence from one or more of the plurality of sensors

(Col. 15, lines 9 – 27); and

the analysis component generates the information based on a value of the

at least one feature for determining the context (Col. 9, lines 15 – 43).

Regarding claims 43 and 83, Horvitz teaches a method of analyzing data,

comprising: obtaining perception evidence for a perception system for a particular

context;

analyzing the perception evidence utilizing an analysis policy to determine a

perceived system value (Col. 9, lines 15 – 43); and

employing the perceived system value to limit utilization of computing resources

of a computer system by the perception system by determining whether to obtain the

perception evidence based on the determined perceived system value, wherein a time

at which the perception evidence is obtained is selected based on an intensity of

interaction of a user with the computer system (Col. 15, lines 23 – 27; Col. 16, lines 12 –

18).

Regarding claim 79, Horvitz teaches a data analysis system, comprising: sensor

means to collect perception evidence; control means to control the plurality of sensors

to selectively gather the perception evidence obtained for employment via a perception

system to limit utilization of computing resources of a computer system by the

perception system (Col. 9, lines 15 – 43); and

analyzing means to analyze the perception evidence utilizing an analysis policy

to determine context of use of the computer system by one or more users in which the

perception system is operating, wherein the analyzing means is employed to guide the

control means regarding which features to collect by the sensor means as the

perception evidence depending on a value of the features for limiting of the utilization of

the computing resources by the perception system (Col. 15, lines 23 – 27; Col. 16, lines

12 – 18).

Regarding claim 80, Horvitz teaches a data analysis system, comprising:

a first component of a perception system that receives a data query relating to

data to determine a context in which the perception system is operating so that to limit

utilization of computing resources of a computer system by the perception system,

wherein the data comprises perception evidence pertaining to at least one feature

collected by a plurality of sensors (Col. 9, lines 15 – 43); and

a second component that analyzes volatility versus persistence of observations

of at least one state of the data over time to establish reasonableness in timing of at

least one reply to the query, wherein

the plurality of sensors collect the perception evidence pertaining to the at least

one feature based on a value of the at least one feature in the context (Col. 15, lines 23

– 27; Col. 16, lines 12 – 18), and

selection of the at least one feature depends on an intensity of interaction of a user with the computer system (Col. 15, lines 23 – 27; Col. 16, lines 12 – 18).

Regarding claims 2 and 44, Horvitz discloses the system of claims 1 and 43, wherein the analysis component employing, at least in part, learned inferences relating to persistence versus volatility of observational states to account for unobserved data (Col. 15, lines 9 - 27).

Regarding claims 3 and 45, Horvitz teaches the system of claims 2 and 44, the learned inferences based, at least in part, on a probability distribution over future states based on at least one previously observed value that is captured by at least one function of time (Col. 15, lines 9 – 27; Col. 9, lines 50 – 53).

Regarding claims 5 and 47, Horvitz teaches the system of claims 1 and 43, wherein the control component employing a criticality level of at least one user task to limit utilization of computing resources by the perception system (Col. 16, lines 8 – 39).

Regarding claims 6 and 48, Horvitz teaches the system of claims 1 and 47, wherein the control component limiting utilization of computing resources based upon context (Col. 16, lines 8 – 39).

Regarding claim 7, Horvitz teaches the system of claim 1, wherein the control component limiting utilization of computing resources by controlling what analysis policy is employed (Col. 16, lines 8 – 39).

Regarding claim 8, Horvitz teaches, the system of claim 8, wherein the selection of the analysis policy based on context information (Col. 16, lines 8 – 39).

Regarding claims 9 and 49, Horvitz teaches the system of claims 1 and 43, further comprising at least one perception sensor to provide the perception evidence for the perception system (Fig 6; Col. 15, lines 51 - 62).

Regarding claim 10, Horvitz teaches the system of claim 9, the control component limiting utilization of computing resources by facilitating control of at least one selected from the group consisting of an analysis process for at least one perception sensor and a focus of attention of at least one perception sensor (Col. 15, lines 9 - 16).

Regarding claims 11 and 50, Horvitz teaches the system of claims 9 and 49, the control component limiting utilization of computing resources by controlling what perception sensors are employed (Col. 15, lines 9 - 16).

Regarding claim 12, Horvitz teaches the system of claim 9, the perception sensor comprising at least one selected from the group consisting of a video camera, an audio microphone, a keyboard keystroke sensor, a mouse utilization sensor, and a motion detector (Fig 6; Col. 15, lines 51 - 62).

Regarding claim 13, Horvitz the system of claim 9, the perception sensor comprising a detector for at least one state of at least one selected from the group consisting of at least one data structure within a computing system and at least one application activity within a computing system (Col. 15, lines 9 - 16).

Regarding claim 14, Horvitz teaches the system of claim 1, further comprising a user interface component that interfaces with at least one user to relay information relating to user perception preferences to the perception system (Col. 16, lines 8 – 39).

Regarding claim 15, Horvitz teaches the system of claim 14, the control component employing at least one user perception preference to limit utilization of computing resources by the perception system (Col. 15, lines 9 – 27).

Regarding claim 16, Horvitz teaches the system of claim 14, the user perception preferences comprising values of cost for utilizing computing resources (Col. 16, lines 8 – 39).

Regarding claim 17, Horvitz teaches the system of claim 1, the perception evidence analysis operations comprising analysis policy selection control operations between the control component and the analysis component (Col. 14, lines 37 – 67).

Regarding claim 18, Horvitz teaches the system of claim 1, the perception evidence analysis operations comprising perception evidence related information exchanges between the control component and the analysis component (Col. 15, lines 9 – 27).

Regarding claim 19, Horvitz teaches the analysis system of claim 1 utilized to design an analysis policy of at least one perception system and its perception sensors (Col. 16, lines 8 – 39).

Regarding claims 21 and 78, Horvitz teaches the analysis system of claims 1 and 43 utilized to provide information relating to volatility of data due to influences of a flow of time (Col. 15, lines 9 – 27).

Regarding claim 22, Horvitz teaches the analysis system of claim 1 utilized to determine at least one time- based economic value of a business given its environmental context (Col. 9, lines 25 - 62).

Regarding claim 23, Horvitz teaches the system of claim 1, the analysis policy comprising a context-based analysis policy (Col. 16, lines 8 – 39).

Regarding claims 27 and 65, Horvitz teaches the system of claims 1 and 43, the analysis policy comprising an EVI-based perception policy that determines an expected value of information via a cost-benefit analysis means utilizing at least expected values and cost of analysis values for at least one feature (Col. 9, lines 15 – 46).

Regarding claim 29, Horvitz teaches the system of claim 27, the EVI-based perception policy employing a context-based cost model to determine the cost of analysis values (Col. 8, line 62 – Col. 9, line 14).

Regarding claim 30, Horvitz teaches the system of claim 27, the EVI-based perception policy employing real-time computations of expected value of information (Col. 8, line 62 – Col. 9, line 14).

Regarding claim 31, Horvitz teaches the system of claim 30, the real-time computations processed utilizing a myopic, single step approach for computing a next best set of observations (Col. 10, lines 16 – 23).

Regarding claim 32, Horvitz teaches the system of claim 27, the cost of analysis values comprising at least one selected from the group consisting of dollar values,

percentage of CPU utilization values, latency values, and user selected preference values (Col. 8, line 62 – Col. 9, line 14).

Regarding claim 33, Horvitz teaches the system of claim 27, the cost-benefit analysis means utilizing substantially similar value types for a cost value and a benefit value to calculate the expected value of information (Col. 8, line 62 – Col. 9, line 14).

Regarding claim 34, Horvitz teaches the system of claim 27, the cost-benefit analysis means further comprising at least one utility model that facilitates in analyzing a benefit of determining a value of at least one feature (Col. 8, line 62 – Col. 9, line 14).

Regarding claim 35, Horvitz teaches the system of claim 34, the utility model comprising a conditional utility model that alters functionality dependent upon context (Col. 16, lines 8 – 39).

Regarding claims 37 and 69, Horvitz teaches the system of claims 27 and 65, the EVI-based perception policy further comprising a probabilistic model (Col. 9, lines 49 – 52).

Regarding claim 51, Horvitz teaches the method of claim 49, further comprising:

selecting when perception sensors are employed to obtain perception evidence to further optimize the limiting of the computing resources employed by the perception system (Col. 8, line 62 – Col. 9, line 14).

Regarding claim 52, Horvitz teaches the method of claim 49, at least one perception sensor comprising perception evidence for at least one feature (Col. 15, lines 9 – 27).

Regarding claim 53, Horvitz teaches the method of claim 43, further comprising:

selecting the analysis policy based on optimization of limiting computing

resources for a given context (Col. 16, lines 8 – 39).

Regarding claim 54 (2nd 53), Horvitz teaches the method of claim 43, further

comprising:

selecting the analysis policy based on optimization of limiting computing

resources for obtaining a desired feature (Col. 16, lines 8 – 39).

Regarding claim 55, Horvitz teaches the method of claim 43, employing the

perceived system value

comprising utilizing computing resources when the perceived system value is

above a threshold (Col. 9, lines 15 – 46).

Regarding claim 56, Horvitz teaches the method of claim 43, employing the

perceived system value comprising utilizing computing resources for a feature

combination that yields a maximal perceived system value (Col. 9, lines 15 – 46) .

Regarding claim 66, Horvitz teaches the method of claim 65, further comprising:

calculating a benefit value for determining a feature; calculating a cost value for

determining the feature; and utilizing the EVI-based perception policy to derive a cost-

benefit analysis value of the feature; the cost benefit analysis utilizing a benefit value

and a cost value (Col. 8, line 62 – Col. 9, line 14).

Regarding claim 67, Horvitz teaches the method of claim 66, the benefit value

and the cost value calculated employing a substantially similar value type (Col. 8, line

62 – Col. 9, line 14).

Regarding claim 68, Horvitz teaches the method of claim 67, the value type

comprising at least one selected from the group consisting of a dollar value, a

percentage of CPU utilization value, a latency value, and a user-selected value (Col. 8,

line 62 – Col. 9, line 14).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

Claims 4 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Horvitz in view of Wolfram (previously cited).

Regarding claims 4 and 46, Horvitz teaches the system of claims 3 and 45.

Horvitz does not explicitly indicate do not disclose the probability distribution

comprising a Gaussian distribution:

$$P(x) = \frac{1}{\left(2\pi\sigma(t)^2\right)^{1/2}} \exp\left\{-\frac{(x-\mu)^2}{2\sigma(t)^2}\right\}$$

where μ is a mean value and $\sigma(t)$ is a standard deviation at time "t".

However, Wolfram discloses as equation (1).

It would have been obvious to the one skilled in the art at the time of the

invention to combine the teaching of Horvitz with the teaching of Wolfram to have the

above Gaussian distribution. Because it would provide users the marginal distribution over function values at any finite set of points can be specified. This enables us to focus on the variables of interest.

Allowable Subject Matter

Claims 20, 24-26, 28, 38-42, objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Additionally, please note there is no prior art rejection on claims 57-64 and 70-77, but the claims are rejected under a 35 U.S.C §101 rejection.

Other Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent No. 7565447 issued to Gellens et al. because it teaches determine a more efficient time to transfer perception data across the network based on measured context (see Col. 9, line 15 – Col. 10, line 48).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEVIN BATES whose telephone number is (571)272-3980. The examiner can normally be reached on M-F 8 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Rupal Dharia can be reached on (571) 272-3880. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KEVIN BATES/
Primary Examiner, Art Unit 2456